

IN THE CLAIMS

Please replace all prior versions, and listings, of claims in the application with the following complete list of claims. Insertions are indicated by underlining and deletions are indicated by strikeouts and/or double bracketing.

1-165. (Cancelled)

166. (Previously Presented) A system for maintaining and cultivating cells in culture and obtaining a protein resulting from interaction of the cells with oxygen and/or nutrients and/or other components, comprising:

a small-scale chemical or biochemical reactor comprising a plastic substrate comprising at least one reaction unit, the reactor comprising an inlet, an outlet, and a fluid pathway connecting the inlet and the outlet, the fluid pathway comprising a chamber having a surface suitable for cell growth and a volume of less than about 1 ml, the chamber being constructed and arranged to maintain and cultivate cells in culture, the chamber further comprising an inlet fluidly connectable to a source of nutrients for the cells having a controlled pH, and an outlet for release of the protein resulting from the interaction involving the cells in the chamber;

a membrane defining at least one wall of the fluid pathway;

an enclosure positioned proximate the membrane, wherein at least one product of the interaction involving cells in the chamber passes across the membrane into the enclosure;

the reactor further comprising a pH sensor.

167. (Previously Presented) A system for maintaining and cultivating cells in culture and obtaining a protein resulting from interaction of the cells with oxygen and/or nutrients and/or other components, comprising:

a small-scale chemical or biochemical reactor comprising a plastic substrate comprising at least one reaction unit, the reactor comprising an inlet, an outlet, and a fluid pathway connecting the inlet and the outlet, the fluid pathway comprising a chamber

having a surface suitable for cell growth and a volume of less than about 1 ml, the chamber being constructed and arranged to maintain and cultivate cells in culture, the chamber further comprising an inlet fluidly connectable to a source of nutrients for the cells having a controlled pH, and an outlet for release of the protein resulting from the interaction involving the cells in the chamber;

a membrane defining at least one wall of the fluid pathway;

an enclosure positioned proximate the membrane, wherein at least one product of the interaction involving cells in the chamber passes across the membrane into the enclosure;

the reactor further comprising an oxygen sensor.

168-183. (Cancelled)

184. (Previously Presented) A system as in claim 166, further comprising means for controlling the temperature of the chamber to maintain a temperature suitable for cultivating cells to generate the protein resulting from interaction of the cells with oxygen and/or nutrients and/or other components.

185-187. (Cancelled)

188. (Currently Amended) A system as in claim 166, further comprising a mixing unit fluidly connectable to the inlet of the chamber, the mixing unit including an outlet connectable to the inlet of the ~~reaction~~ chamber, a plurality of inlets each in fluid communication with the outlet and a mixing chamber between plurality of inlets and of the outlet.

189. (Currently Amended) A system as in claim 188, wherein the mixing ~~unit~~ chamber is free of active mixing elements.

190-198. (Cancelled)

199. (Currently Amended) A system as in claim 167, wherein the system comprises a plurality of reaction units ~~are~~ attachable to and separable from each other, the plurality of reaction units being constructed and arranged to operate in parallel.